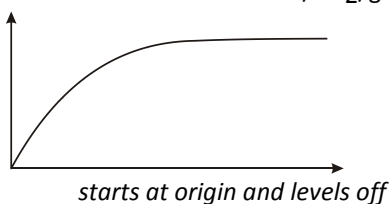


Topic 06 – Kinetics SL Exam MS

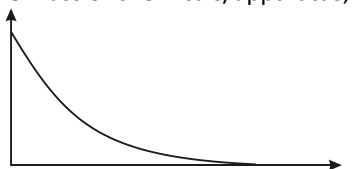
1. C
2. B
3. B
4. C
5. B
6. D
7. C
8. C
9. C
10. D
11. A
12. B
13. A
14. C
15. A
16. (a)

measure volume of carbon dioxide/ CO_2 /gas produced/measure pH;

4



measure mass of chemicals/apparatus;



*Graph should show increase as reaction progresses
(as HCl is consumed).*

- (b) *Method 1*
use powdered MgCO_3 /OWTTE;
particles collide more frequently/increased surface area/OWTTE;
Method 2
increase (reaction) temperature/heat/warm;
more of the collisions are successful/more particles with $E > E_a$ /OWTTE;
Method 3
increase acid concentration;
more frequent (reactant) collisions;
Method 4
add catalyst;
lowers activation energy/ E_a /OWTTE;

6 max

Award [2] each for any three methods

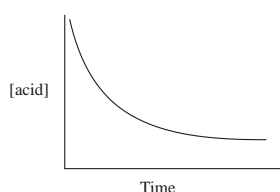
- (c) (i) stays the same;
 MgCO_3 was already in excess;
- (ii) stays the same;
same quantities of reactants used;

2

2

17. (i) a curve showing concentration decreases with time;
i.e.

1



*No penalty if curve reaches x axis
Do not accept a straight line*

[14]

- | | | | |
|------------|-------|--|---|
| | (ii) | slope decreases; | 1 |
| | (iii) | rate decreases; | |
| | | fewer collisions <u>per unit time</u> ; | 2 |
| 18. | (a) | change of concentration/mass/amount/volume/of a reactant/product with time;
<i>Do not accept "substance".</i> | 1 |
| | (b) | all the $\text{CaCO}_3(\text{s})$ has been consumed/no further $\text{CO}_2(\text{g})$ is produced/reaction
is complete;
<i>Do not accept reaction has stopped or all reactants used up.</i> | 1 |

[4]